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LAWRENCE LIVERMORE POSTDOC ASSOCIATION

POSTDOC Q&A SESSION WITH DR. TOMÁS DÍAZ DE LA RUBIA

By Nick Be

No matter where you are in your scientific journey, advice from those who have gone before you is tremendously valuable. Navigating the rocky road of a research career is a difficult task, one that is made much more bearable by guidance from those with experience and wisdom to share. And just as Plato had Socrates, Michael Jordan had Phil Jackson, and the Karate Kid had Mr. Miyagi, on April 23rd, 2012, the LLNL postdocs had Dr. Tomás Díaz de la Rubia, Deputy Director for Science and Technology.

The Yosemite Room at the Open Campus High Performance Computing building was packed to capacity with postdocs eager for the chance to hear from the Deputy Director, and to sample the finest pizza this side of the Livermore Costco. Dr. Díaz de la Rubia opened the session with a brief introduction to his career at the Lab, which began with a postdoc in computation. Later on, after becoming a US citizen, he transitioned into multiple leadership positions.

One particular topic of interest to the group was how Dr. Díaz de la Rubia transitioned from a technical career to management. The Deputy Director stated that he initially never really considered following a managerial pathway, but that it was something he gradually moved toward after becoming a group leader. He did stress that, for those interested in maintaining a technical focus, the Distinguished Members of the Technical Staff program is now providing increased recognition and compensation for those individuals with exemplary scientific records. Furthermore, a new nomination-based program will be launching soon to recognize outstanding technical achievements made by scientific staff members.

Dr. Díaz de la Rubia issued several important pieces of advice honed through his own experience, one of which was to "find that sweet spot where the science and the mission come together." He emphasized that finding the connection between your own scientific passions and the direction of the Lab is one of the key pathways for constructing a successful career at LLNL.

POSTDOC Q&A SESSION, CONTINUED

For those postdocs interested in pursuing a continuing career at the Lab, he cautions that "there is no recipe – it's impossible to have an instruction manual. You have to make your own way, and be aware of all the opportunities around you." He did recommend that postdocs start looking for these opportunities at the start of the second year, and reassured the group that, since there is a strong preference for hiring postdocs, "if you're here, we are interested in you as a scientist." The Lab has hired a large number of postdocs in the past few years, and is still retaining approximately 50% of individuals after their postdoctoral training has concluded.

The floor was soon opened to the question and answer portion of the meeting, at which point hands quickly went skyward and the questions began flowing, with postdocs making inquiries such as:

Our costs here at the Lab are high. How can we compete for funding with organizations with lower overhead? We need to compete in areas where we have a significant advantage, and find reasons why the work could not be effectively done elsewhere. Again, it is important to get yourself connected to the mission to successfully compete for funding sources.

Is there a solution to our high overheads, in light of the current budget climate? Budget solutions are difficult to come by right now – look at the economy. Our higher overhead represents the fact that our salaries are higher than at other institutions. A large proportion of this also supports LDRD funding, without which, overhead would be reduced by as much as 50%.

How often do LDRD projects transition to programmatic funding? It does happen, and generally takes approximately 3 years.

What proportion of the Lab's funding comes from NNSA, and is it not enough? We receive approximately 75% support from NNSA, and the short answer is no, it is not enough. However, we need to remember that LLNL is not only a nuclear security lab, but a national security scientific lab.

Will there be any cuts to the 25% institutional account? Management has always reaffirmed the importance of the 25% account for postdocs, and this is not something that will change any time soon. This freedom is an important part of the unique postdoc experience at LLNL.

Is management considering any layoffs at this point in time? We do not have plans to make any cuts, although it is true that we are not aggressively hiring at this point. In any case, postdocs are protected from any potential workforce reductions.

Will sensitive country foreign nationals be able to get VPN access? Unfortunately, this is unlikely.

What effect, if any, would a change in presidential administration have on the Lab? The primary effect that new administrations have is to change the overall focus of funding. For instance, with an Obama administration, we expect an increased focus on amplifying forces for nuclear deterrence.

How serious is the Lab about its commitment to the Livermore Valley Open Campus (LVOC) concept? LVOC is very important to increasing our ability to partner with the private sector. This will accelerate our economic competitiveness in areas where the Lab is already strong. One example is CES-21, which is a large partnership with California utilities to improve energy grid efficiency and electric resource planning.

After over an hour and a half, the Q&A was concluded, and postdocs left saturated with much more information than when they arrived. Newly outfitted with an armamentarium of career advice, they set out for their labs, offices, and training dojos to continue their scientific quests. We certainly appreciate Dr. Díaz de la Rubia's time, and look forward to meeting with him at next year's session.

NEXT STEPS: INTERVIEWS WITH FORMER POSTDOCS

Interview conducted by David Alessi.

When was the end of your postdoc?

James Lewicki: December 2011.

Where do you work now and how is that similar or different from what you did as a postdoc?

PLS, Chemical Sciences Division. I work as a Physical Chemist in the Enhanced Surveillance Campaign. My Position as a PI and research duties remain broadly the same as they were in the last year of my postdoc.

Did you apply elsewhere? Why did you make this particular choice (Lab vs. academia vs. industry)?

No, I felt that this post-doc was akin to an extended interview/probationary period for the job that I currently perform. The Lab offers a decent salary/benefits package and an impressive level of resources for research. That attracted me to the position more than anything.

What did you enjoy the most and the least about being a postdoc at LLNL? What do you think are the differences between a postdoc at the Lab versus at a university?

At LLNL, certainly within a core funded program such as ESC, you have a lot of resources and funding available to do really exciting research. Diligence, competence and a willingness to work hard are also quickly rewarded with responsibility and positions of trust. What was very different from an academic post-doc (of which I did 3 over 2 years before joining the Lab) is the attitude toward post-doctoral research staff at LLNL. I felt that that postdocs were at times regarded to be equivalent to grad-students or are somehow immature and naïve; when in fact they are committed professionals who do a large amount of very high

quality research (at a low, low price per head.) The reality is that post-doctoral research staff at LLNL are very cheap to have on a project when compared with staff. They also work very hard and are very good at what they do. I feel they do not always get the recognition for what they deserve and are even treated in a somewhat condescending manner at times. A personal opinion to be sure, but one nonetheless.

How far along your postdoc were you when you decided what the next step in your career would be?

3 months.

How did you get your new job?

I made a case for my conversion based on my suitability to fulfill a role within ESC in a more permanent manner.

Any piece of advice for postdocs at LLNL?

Remember that you're a professional and not a grad student. You often have the best chance of getting something done if you are somewhat proactive.

PÉREZ WINS EPS PLASMA PHYSICS PH.D. RESEARCH AWARD

LLNL postdoc Frédéric Pérez is one of three recipients of this year's Ph.D. Research Award from the Plasma Physics Division of the European Physical Society (EPS). Pérez will receive his award during the 39th EPS plasma physics conference, held in Stockholm, Sweden, on July 2-6.

Pérez received the award for his work on his doctoral thesis, "Study of supra-thermal electron transport in solid or compressed matter for the fast-ignitor scheme." His research focused on addressing experimentally some of the physics of the fast ignition concept, one of the possible routes toward laser-driven nuclear fusion. In this scheme, a critical point is the generation of electrons through dense plasmas using ultra-intense short-pulse lasers.

Read the full article on NewsLine:
https://pao-int.llnl.gov/news/peoplegrouphighlights/2012/Jun/atl-061412perez.html

CAREER RESOURCES

Upcoming events:

July 10, 11 am – 12 pm:
PLS postdoc seminar series
B151 R1209 (Stevenson Room)
Iwona Pawelczak, CSD
Alan DeHope, CSD

July 17, 2:30-5:30 pm:
5th Annual Institutional Postdoc Poster Symposium.
Register here: https://symposium.llnl.gov/postdoc

All Hail the Generalist
Vikram Mansharamani, Harvard Business Review
"Within a company, employees skilled in numerous functions are more valuable as management can dynamically adjust their roles. Many forward-looking companies are specifically mandating multi-functional experience as a requirement for career progress… individuals should manage their careers around obtaining a diversity of geographic and functional experiences."

SCIENCE JOBS IN A NUTSHELL

A guide to science careers from Experimental Error, by Adam Ruben

Academics: If you like grant writing, writing grants, and obtaining grants via writing, you may enjoy life as an academic scientist.
Industry: Academics often say disdainfully that you need a certain quality to work at a large biotech or pharmaceutical company, and that quality is evil. Apparently only evil people apply their skills to solve real-world problems, and only evil people are paid well.
Adjuncting: Offers freedom from the tenure struggle, freedom from the stifling responsibilities of a full-time professor, and freedom from the burden of income.
Founding a startup: Wait for a large company to buy yours - because your startup may not actually *do* anything, but what you don't do is so confusing that they'd rather buy you than risk letting you do things.
Advocacy: Scientists aren't great at expressing themselves. We end up saying things like, "Hepatitis kills over 1 million people every year, therefore give me money to build a mechanized kangaroo with lasers." That's why there are science advocates.

CAREERS IN POLICY

Dr. Zachary Davis is a group leader in Z Division and specializes in technical analysis of foreign weapons of mass destruction programs. On June 6th, Dr. Davis gave an excellent seminar on applying technical skills to a career in intelligence and policy.

In his talk, Dr. Davis emphasized how it is necessary in his field to connect what C.P. Snow called the "two cultures" – bridging the gap between technical and non-technical disciplines. As members of the scientific community, we have critical information of relevance to policy makers; however, "these people have no time" and are interested in *today's* issues. They require half-page, five minute reports, not lengthy manuscripts.

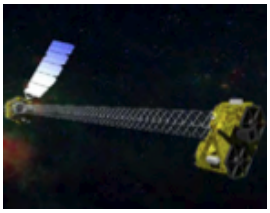
Dr. Davis went on to describe the importance of not projecting a "mirror image" in policy analysis – just because we would react to a situation in a certain way, we cannot assume that our foreign counterparts will behave similarly. He gave several interesting examples of how overstated technical advice can lead to broad policy decisions, such as the suggestion in 2002 that Iraqi acquisition of aluminum tubes indicated imminent intentions for uranium enrichment. The field also comes with its unique frustrations, such as when North Korea was unable to comply with international nuclear regulations because they "lost the paperwork."

Overall, Dr. Davis stressed that the government is hungry for Ph.D.s with deep skills for careers in law enforcement, military, and international relations. If you are interested in applying technical skills to the fast-paced world of intelligence, a career in policy may be right for you!

JOB LINKS

Official LLNL jobs site: careers.llnl.gov
Postdoc listings: www.postdocjobs.com
Academic jobs: www.academickeys.com
APS Careers in Physics: www.aps.org/careers
Institute of Physics: brightrecruits.com
Nature: www.naturejobs.com
Science and AAAS: sciencecareers.sciencemag.org
Government jobs: www.usajobs.gov/
Industry jobs: www.indeed.com
www.monster.com
sfbay.craigslist.org/jjj/
www.linkedin.com/jobs

POSTDOC HIGHLIGHTS: NOTES TO THE DIRECTOR



NuSTAR x-ray observatory successfully launched

The NuSTAR X-ray observatory was successfully launched into orbit on June 13. *(Editor's note: NuSTAR stands for "Nuclear Spectroscopic Telescope ARray.)* The 770 lb satellite was carried by a Pegasus rocket launched from an L-1011 aircraft that took off from Kwajalein Atoll in the Marshall Islands. NuSTAR is a NASA Small Explorer mission, led by Fiona Harrison at the California Institute of Technology and involving a large team of international collaborators. The mission will deploy the first focusing telescopes to image the sky in the high-energy x-ray (6 - 79 keV) region of the electro- magnetic spectrum. Our understanding of this region of the spectrum is limited because previous space-based x-ray telescopes have not employed true focusing optics, and have suffered from high backgrounds and limited sensitivity. NuSTAR will be hundreds of times more sensitive than any previous hard x-ray instrument, which will greatly improve image resolution, and enable the observation of whole new classes of astronomical objects and phenomena. LLNL was involved in both the design and testing of NuSTAR's x-ray optics that enabled the dramatic improvement in capabilities of this mission. The lead optics engineer for the telescopes, Todd Decker, worked for NuSTAR while on leave from LLNL. Bill Craig served as the manager of the NuSTAR payload *(Editor's note: see Paper/Work Volume 1, Issue 13 for our Postdoc Association interview with Dr. Craig)* and was responsible for developing and integrating the instrument components. Mike Pivovaroff and postdoc **Julia Vogel** played key roles in optics calibration and will be involved in the science resulting from NuSTAR's data.

Advances aid understanding of Z-pinch plasmas

A team working to advance understanding of Dense Plasma Focus (DPF) Z-pinch plasmas for next-generation accelerator applications has recently completed the first fully kinetic simulations of the Z-pinch. These are the first DPF simulations ever to self-consistently predict beam energy and neutron yields at appropriate levels, and are helping us resolve the unknown mechanisms responsible for >MV/cm acceleration in these plasmas. These simulations are providing answers to enduring mysteries behind one of the most basic plasma configurations: the Z-pinch. The work is another step toward understanding and ultimately exploiting these ultra-high acceleration gradients for a next-generation, plasma-driven accelerator. Additionally, the team experimentally achieved gradients greater than 0.5 MV/cm in a tabletop DPF device, a record for sub-kJ DPF plasmas. Core team members include postdoc **Andrea Schmidt**, Vincent Tang, postdoc **Jennifer Ellsworth**, Steve Falabella, Guy Akana, Rick Anaya, and Brian Rusnak.

COMMENTS/SUGGESTIONS/PRAISE/COMPLAINTS?

Please send your feedback to the Editor (Nathan Kugland, kugland1@llnl.gov).

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